

Descriptions of new Species of Aculeate Hymenoptera collected by the Rev. Thos. Blackburn in the Sandwich Islands. By FREDERICK SMITH, F.Z.S. (Communicated by ARTHUR G. BUTLER*, F.L.S.)

[Read March 20, 1879.]

THIS small collection of Hymenoptera from the Sandwich Islands is an extremely interesting one. It is so not only from the circumstance of the locality being so completely isolated (the nearest point of land of the American continent, California, being about 2500 miles distant), but also in consequence of so little being known of the Hymenopterous fauna of these islands; only some half a dozen species are in the collections of the British Museum, which were obtained on Capt. Beechey's voyage.

The general aspect of the collection is certainly North-American, with a slight mixture of Californian, Mexican, and South-American species. The eight species of Ants are the most diverse in character. One, *Camponotus sexguttatus*, is distributed throughout Brazil and South America. Another, *Pheidole pusilla*, the house-ant of Madeira, observed and described by Professor Heer on his residence in the island, is said to be one of the commonest Ants in the Sandwich Islands, where it lives at large, nesting under stones; the species is cosmopolitan, and in northern latitudes takes up its abode in houses; it is also a common greenhouse species, and in London is found in bakehouses. Another of the Ants, *Solenopsis geminata*, has a wide geographical range; it is common in Calcutta, is found in most of the islands of the Eastern Archipelago, and also throughout South America and Brazil. The little European Ant, *Ponera contracta*, we should scarcely have expected to receive from so remote and isolated a locality; but both the female and worker are in the collection. Seven species of *Odyneri* are described as new on the authority of Dr. Saussure, whose work on the American Wasps is so well known. Of Apidæ, six species of *Prosopis* are in the collection, only one of which was previously described. A new species of *Megachile* and the common Hive-Bee (*Apis mellifica*) complete the list of the Bees.

* [The MS. of this paper was placed in my hands for publication subsequent to the death of the author.—A. G. B.]

Fam. FORMICIDÆ.

CAMPONOTUS SEXGUTTATUS, *Fabr. Ent. Syst.* ii. p. 354. ♂ ♀ ♀.

Hab. Honolulu. South America; Brazil.

A nest of this ant occurred in an old drawer in a house (*T. B.*).

PRENOLEPIS CLANDESTINA, *Mayr, Neue Formiciden* (1870), p. 10.

Hab. Oahu. Java.

Fam. PONERIDÆ.

PONERA CONTRACTA, *Latr. Gen. Crust. et Ins.* iv. p. 128.—*Formica contracta*, *Latr. Hist. Nat. Fourm.* p. 195, tab. 7. fig. 40.

Hab. Oahu. South America; Madeira; Europe.

This species is rare; I have never found a nest. (*T. B.*)

LEPTOGENYS INSULARIS, n. sp. *Worker.* Length $3\frac{1}{2}$ lines. Opaque black, and thinly covered with ashy pile. Head widest anteriorly; the eyes ovate, placed forwards, at the sides near the base of the mandibles, which are falcate, and pointed at their apex, which is ferruginous; the flagellum of the antennæ rufo-testaceous, obscurely so above; the clypeus produced; the antennæ inserted at the sides of a prominence above the clypeus. Thorax oblong, compressed from the prothorax to the apex of the metathorax; the tarsi more or less rufo-testaceous. Abdomen oblong, posteriorly narrowed to the apex; the node of the peduncle subglobose, of the width of the metathorax, but narrower than the first segment of the abdomen, which is slightly constricted; the apical segment pale ferruginous, and with a few fulvous hairs.

Hab. Island of Oahu.

Not rare; it forms its nest under stones; workers only taken. (*T. B.*)

Fam. MYRMICIDÆ.

TETRAMORIUM GUINEENSE, *Fabr. Ent. Syst.* ii. p. 357. ♀.

Hab. Oahu. Guinea.

PHEIDOLE PUSILLA, *Heer, Ueber die Hausameise Madeira's* (1852); *Ann. & Mag. Nat. Hist.* (1856) xvii. p. 221. ♂ ♀ ♀ major, ♀ minor.

Hab. Honolulu.

One of the commonest Ants here, forming its nests under stones. The nests always contain three forms; but I have never found the male. (*T. B.*)

SOLENOPSIS GEMINATA, *Mayr & Roger*.—*Solenopsis cephalotes*, *Smith, Journ. Proc. Linn. Soc.* iv. p. 140. ♀ major.—*Atta geminata*, *Fabr. Syst. Piez.* p. 423.

Hab. Honolulu. South America; India; Aru, Celebes, Batchesian.

I found a single nest in a palm-tree, which seemed to contain no other sex than the worker; it stings very venomously. (*T. B.*)

Fam. SPHEGIDÆ.

PELOPÆUS FLAVIPES, *Fabr. Syst. Piez.* p. 204.

Hab. Honolulu. North America; Mexico.

Very abundant everywhere. I have caught the female carrying spiders. (*T. B.*)

Fam. LARRIDÆ.

PISON IRIDIPENNIS, n. sp. *Male*. Length 3 lines. Black; head and thorax finely and closely punctured, and slightly shining; abdomen shining, and very delicately punctured. The face with silvery-white pubescence as high as the emargination of the eyes; the palpi rufo-testaceous. The metathorax obliquely and finely striated; having a central longitudinal channel, and with silvery-white pubescence laterally; the wings hyaline and splendidly iridescent, the nervures black; the legs with silvery pile, which is very bright on the posterior tibiæ within. Abdomen—at the basal margin of the second segment laterally a little silvery-white pubescence, on the apical margins of the segments laterally a little silvery pile, only observable in certain lights.

Hab. Honolulu.

Rare; a single female taken, which differs sexually as in the following species. (*T. B.*)

PISON HOSPES, n. sp. *Female*. Length $5\frac{1}{4}$ lines. Black, shining, with the head and thorax closely and finely punctured, the abdomen with fasciæ of silvery-white pubescence. Head—the face below the antennæ with bright silvery pubescence, also a line on the margin at the inner orbit of the eyes, as high as their emargination; the anterior margin of the clypeus rounded. Thorax—the hinder margin of the prothorax with a little silvery-white pubescence, and also on the sides of the metathorax, which has a deep central longitudinal channel; the wings subhyaline, the nervures black; the legs covered with silvery pile; the calcaria black. Abdomen much more finely and closely punctured than the thorax; the segments slightly constricted; the apical

margins of the segments with fasciæ of fine silvery pubescent pile, which are very brilliant in certain lights, and which are widened laterally.

The *male* only differs in being smaller and in having an additional joint in the antennæ and an extra segment to the abdomen.

A common but not abundant species; it was taken in the islands of Oahu, Kauai, and Maui. Mr. Blackburn says that he has bred this species from the same collection of cells as those which produced species of *Pelopæus* and of *Crabro*. This observation appears to indicate the habit of the genus to be parasitic; but this cannot be the case, their economy having been observed and published by Mr. Horne in the seventh volume of the Transactions of the Zoological Society. The species construct cells of mud, which they provision with spiders, the food of their young brood. The genus *Crabro* usually provisions its cells with Diptera.

Fam. CRABRONIDÆ.

CRABRO AFFINIS, n. sp. *Female*. Length $4\frac{1}{2}$ lines. Black; the abdomen shining, and having two yellow fasciæ, the first interrupted. Head and thorax semiopaque; the former with the ocelli in a curve on the vertex; the basal half of the mandibles and the scape of the antennæ in front yellow; the clypeus with a longitudinal carina, and thinly covered with silvery pile. Thorax—the mesothorax with two abbreviated longitudinal ridges on the disk; the scutellum obsoletely bituberculate; the metathorax with a central longitudinal channel; wings subhyaline, the nervures black; the outer margin of the tegulæ flavo-testaceous. Abdomen with a slightly interrupted yellow fascia on the basal margin of the second segment; and a narrow uninterrupted one near the basal margin of the fourth; the apical margin of the fifth segment narrowly flavo-testaceous, and fringed with short white pubescence; the sixth segment with a few scattered punctures.

Hab. The island of Kauai.

This species was captured very sparingly. It resembles the *C. vagus* of Europe, and belongs to the same division of the genus, having the ocelli in a curve, the *Solenus* of St. Fargeau.

CRABRO MANDIBULARIS, n. sp. *Female*. Length 5 lines. Black, and slightly shining; the head and thorax very closely and finely punctured, and having a few yellow markings. Head—the ocelli in a curve on the vertex; the clypeus and anterior margin

of the face with bright golden-coloured pubescence; the scape of the antennæ in front, and the basal half of the mandibles above, yellow; the cheeks with changeable silvery pile. Thorax—a minute spot on the collar laterally, the tubercles, and the postscutellum yellow; the wings hyaline, the nervures black; the metathorax with a central longitudinal channel, and a few short carinæ at its extreme base, and without the usual enclosed semicircular space at its base. Abdomen smooth and shining, the three or four apical segments with thin short white pubescence; the apical segment with the margins raised, shining, and with a few strong punctures.

Hab. Coasts of Maui.

Taken on flowers on sandy coasts. (*T. B.*)

CRABRO DENTICORNIS, n. sp. *Male.* Length 3–4 lines. Black; the head and thorax slightly shining, the abdomen smooth and shining. Head—the ocelli in a curve on the vertex; the fifth joint of the flagellum produced beneath into a tooth or tubercle; the clypeus with bright silvery pubescence; the mandibles bidentate at the apex, and having a large acute tooth on their inner margin. Thorax—the postscutellum yellow and subinterrupted in the middle; the scutellum slightly bituberculate; the metathorax with a central longitudinal channel, slightly impressed at the base and deeply so towards the apex; wings fusco-hyaline, palest at their base. Abdomen smooth, shining, and impunctate; occasionally the second segment has a small yellow spot laterally.

Hab. Sandy coasts of Maui.

This may possibly be the male of *C. iridipennis*; but the silvery clypeus and dark wings obliged me to hesitate about uniting them.

CRABRO UNICOLOR, *Smith, Cat. Hym. Ins.* pt. iv. p. 421. ♀.

Hab. Honolulu.

Fam. EUMENIDÆ.

Group of Odynerus pratensis, Saussure's American Wasps, p. 292.

ODYNERUS LOCALIS, n. sp. *Female.* Length 7 lines. Head and thorax not strongly but very closely punctured; the clypeus convex, strongly punctured and truncate at the apex. Thorax—the puncturing of the mesothorax is a mixture of large and small ones; the postscutellum with strong punctures and crenulated; the metathorax rugose and truncate; wings dark shining reddish brown. Abdomen shining, truncate at the base, but not sharply ridged; the first and second segment with very fine distant punctures, the puncturing being strongest and closest at the base of

the second segment; the third and following segments with stronger punctures than the first or second; the apical margins of the first and second segments with white fasciæ, that on the first narrower than that on the second.

The *male* only differs in the usual sexual difference in the structure of the antennæ and abdomen; but the white bands on the abdomen are narrower, and the basal segment is rounded, not truncate.

Hab. Kauai.

Abundant on the island Kauai, but not found anywhere else. (*T. B.*)

ODYNERUS MAURUS, n. sp. *Female.* Length $6\frac{1}{2}$ lines. Entirely black, with dark fuscous wings that have a violet iridescence, and some semifusco-hyaline spots about the second and third submarginal cells. The head and thorax very closely punctured; the clypeus with stronger punctures, its apex truncate, concave, and with the lateral angles sharp and apparently bidentate. Thorax—the scutellum flattened; the postscutellum rugose, and with the margin crenulated; the metathorax truncate, having a central longitudinal channel, on each side of which it is obliquely rugose-striate. Abdomen—the basal segment obtusely rounded, not ridged, and, as well as the second segment, with very fine, distant, shallow punctures; the apical margin of the second segment and the following segments with distant large shallow punctures.

The *male* is smaller, but closely resembles the female; the hooked joint at the apex of the antennæ is ferruginous.

Hab. Honolulu &c.

Apparently common all over the Archipelago, constructing mud-nests of 1 to 10 cells against stones, trunks of trees, &c., under eaves of houses, often inside houses. (*T. B.*)

Group of Odynerus vagus, Saussure's American Wasps, p. 314.

ODYNERUS RUBRITINCTUS, n. sp. *Female.* Length $4\frac{1}{2}$ lines. Black, with the postscutellum, the metathorax, basal segment of the abdomen, and the lateral and apical margins of the second segment dark blood-red. Head—a triangular red spot at the insertion of the antennæ above; the clypeus convex, narrowed anteriorly, its apex truncate, the lateral angles of the truncation subdentate. Thorax—a red spot beneath the wings, and a minute one on the tegulæ in front and behind; the thorax, as well as the head, closely and not very strongly

punctured; the scutellum flat, and with a central longitudinal impressed line; the metathorax concave-truncate, the cavity black; wings dark fuscous, with a violet iridescence, along the course of the nervures is a more or less hyaline line. Abdomen shining; the first segment campanulate, and with rather strong distant punctures; the rest of the segments more finely punctured; the red lateral margins of the second segment have a united red spot.

Male. Length $3\frac{1}{2}$ lines. Very closely resembling the female; the terminal hook of the antennæ red. Thorax—two ovate spots on the scutellum, also two beneath wings, frequently united; the second segment of the abdomen has a larger spot at the sides, and no red band on the apical margin.

Hab. Kauai.

This species is not rare on Kauai. (*T. B.*)

Group of Odynerus totonacus, Saussure's American Wasps, p. 346.

ODYNERUS MONTANUS, n. sp. *Female.* Length 6 lines. Entirely black and shining; wings deep brown-black, with a violet iridescence, very brilliant; the stigma and costal nervures bright steel-blue. The clypeus convex, finely punctured, with the apex truncate. Thorax not so strongly or closely punctured as the head; the scutellum flat, the postscutellum slightly convex, shining, and sparingly punctured; the metathorax concave-truncate; having a central longitudinal channel; obliquely rugulose in the middle, the sides coarsely rugose. Abdomen—the first segment campanulate, strongly but not very closely punctured, the apical margin rebordered; the second segment very convex, elevated to a subconical shape, finely and not very closely punctured; its apical margin, as well as the following segments, with large shallow punctures.

Male. Length $5\frac{1}{2}$ lines. Closely resembling the female; the clypeus more strongly punctured, the terminal hook of the antennæ rufo-piceous, the thorax and abdomen as in the female.

Hab. Mountains of Oahu, where it is common. (*T. B.*)

ODYNERUS CONGRUUS, n. sp. *Female.* Length $4\frac{3}{4}$ lines. Black, punctured, and shining; the wings fusco-hyaline, with a dark fuscous stain along the anterior margin of the front pair. The head with distant fine punctures; the clypeus very convex, and with a small truncate projection at its apex, impunctate, or with only a few very fine distant punctures. Thorax smooth and shining

above, having only a few very fine shallow punctures; the scutellum slightly convex; the metathorax opaque, oblique, and with rather large shallow indentations, the lateral margins rounded, without any excavation; the claws of the tarsi ferruginous. Abdomen—the first segment campanulate, as long as broad, finely, evenly, but not very closely punctured; the second segment large, impunctate, or with only a few very fine shallow punctures, its apical margin, as well as the following segments, with shallow fine punctures.

Male. Smaller than the female, but of the same form and similarly sculptured; differs in having, at the apex of the clypeus, two little pale yellow lines, and also a small ovate-yellow spot just above the insertion of the antennæ; the terminal hook of the antennæ and claw-joint of the tarsi ferruginous.

Hab. Honolulu.

This species is not rare. (*T. B.*)

ODYNERUS DUBIOSUS, n. sp. *Male.* Length 4 lines. Black, with fuscous wings, not very dark, but with bright violet iridescence. Head closely punctured; the clypeus impunctate, or with a very few fine shallow punctures; its apex notched above, giving it the appearance of being bidentate; the terminal hooks of the antennæ pale at their tips. Thorax punctured, not strongly so; the lateral angles of the prothorax acute; the scutellum and postscutellum only slightly convex, and sparingly punctured; the metathorax with confluent rather shallow punctures, concave in the middle, with the sides rounded; the scutellum with a central longitudinal impressed line. Abdomen—the first segment campanulate, as broad as long, and evenly punctured; the second segment large, convex, the sides rounded; impunctate, or with only a few very fine shallow punctures; the following segments with fine shallow punctures, but stronger than those on the second segment.

Hab. Honolulu.

ODYNERUS AGILIS, n. sp. *Male.* Length $4\frac{1}{2}$ lines. Black, with a narrow yellow fascia on the apical margins of the first and second segments. Head very closely punctured; a minute yellow spot between but a little above the insertion of the antennæ; the clypeus very convex, and bidentate at the apex; the terminal hook of the antennæ obscurely testaceous; the entire insect with a fine cinereous pile, which is most dense on the head and thorax. Thorax—the scutellum rather convex, and with a central lon-

gitudinal impressed line; the metathorax concave-truncate; wings subhyaline, with a fuscous line along the costal and marginal cells; the wings iridescent. Abdomen—the basal segment campanulate, and with very shallow punctures; the second segment with very fine shallow punctures; the apical segment with shallow punctures.

Hab. Maui.

Apparently rare; I have not seen the female. (*T. B.*)

Fam. VESPIDÆ.

POLISTES AURIFER, *Sauss. Mon. Guêpes Soc.* p. 78.

Hab. Honolulu. California.

Fam. ANDRENIDÆ.

PROSOPIS BLACKBURNI, n. sp. *Female.* Length 3 lines. Black, and closely resembling the female of *P. facilis*, but has the flagellum of the antennæ fulvous beneath. The metathorax with a few short striæ at the base; wings subhyaline and iridescent, the recurrent nervures uniting with the transverse nervures of the second submarginal cell, as in *P. facilis*. The abdomen smooth, shining, and impunctate.

Male. The size of the female; the front of the head as high as the antennæ, yellow, the scape with a yellow line in front, the flagellum fulvous beneath. The tibiæ and tarsi yellow, with a small black spot on the tibiæ behind, and the apical joint of the intermediate and posterior tarsi fusco-ferruginous; wings and abdomen as in the female.

Hab. Island of Maui.

It will be seen that the male of this species differs greatly in colouring from the same sex of *P. facilis*, although the females have little specific distinction.

PROSOPIS FUSCIPENNIS, n. sp. *Male.* Length $4\frac{1}{4}$ lines. Black, the head and thorax semiopaque; the abdomen smooth, very finely punctured, sparsely so at the base, bright and shining; wings fuscous, inclining to fulvous, and brightly iridescent. The head closely and finely punctured; the clypeus somewhat produced, and truncate anteriorly; the scape of the antennæ compressed, its lower margin narrowly white. Thorax—the margin of the prothorax white; the mesothorax and scutellum closely punctured; the metathorax rugose; the anterior tibiæ and tips of the

femora fulvous within, and the four apical joints of the tarsi rufo-testaceous.

Hab. Sandwich Islands.

This species occurs rarely on the mountains of Oahu. I possess a single female, which differs from the male in having the body shorter and stouter, with the terminal ventral segments pointed, and the basal joint of the antennæ narrow and cylindrical. (*T. B.*)

PROSOPIS FACILIS, n. sp. *Female.* Length $3\frac{1}{3}$ lines. Black; the head and thorax very closely and finely punctured; abdomen shining and impunctate. Head suborbiculate; the clypeus coriaceous, with some large shallow punctures. The mesothorax with a short impressed line over the tegulæ; the metathorax with short longitudinal striæ at the base, the sides having a little white pubescence; the wings fusco-hyaline, hyaline at their base, and brightly iridescent. Abdomen smooth, shining, and impunctate.

Male. Very like the female, but more slender; the clypeus and a line at its lateral margins, on the face, yellow; the scape of the antennæ swollen, but black. The anterior tibiæ and tarsi in front, and also the apex of the femora, yellow; the wings paler than in the female; the base of the intermediate and posterior tibiæ rufo-testaceous. Abdomen oblong-ovate, smooth, shining, and impunctate.

Hab. Island of Maui.

PROSOPIS HILARIS, n. sp. *Male.* Length 3 lines. Head and thorax black, the two basal segments and the base of the third ferruginous. Head—the front as high as the antennæ, and on each side, along the margin of the eyes, a little above them, yellow; the scape of the antennæ and the mandibles yellow, the latter ferruginous at their tips; the scape dilated; the flagellum ferruginous. Thorax—the legs ferruginous, with the coxæ and femora towards their base black; wings hyaline and iridescent, their apex faintly clouded; the metathorax subrugose. Abdomen smooth and shining.

Hab. Occurs rarely on flowers in the island of Maui. (*T. B.*)

PROSOPIS VOLATILIS, n. sp. *Male.* Length 3 lines. Head and thorax black, the two basal segments of the abdomen ferruginous. Head—the front, below the antennæ, yellow; the flagellum fulvous and more or less fuscous above; the scape has a fulvous line in front; the mandibles ferruginous towards their apex. Thorax—the anterior tibiæ, tarsi, and tips of the femora ferrugi-

nous; the metathorax finely rugulose, opaque, and with a few short striæ at the base; wings subhyaline, iridescent, and faintly clouded at their apex. Abdomen smooth and shining; the apical margin of the second segment, and the following segments, black.

Hab. Island of Kauai.

Taken sparingly on flowers. (*T. B.*)

Fam. APIDÆ.

MEGACHILE DILIGENS, n. sp. *Female.* Length $4\frac{1}{2}$ lines. Black; the pubescence on the head and thorax obscure pale fulvous, becoming cinereous on the metathorax and on the face anteriorly; the abdomen with ferruginous pubescent fasciæ. Head—the mandibles with four teeth, the two apical ones acute, the others blunt; the cheeks with long cinereous pubescence; the legs with a little short black pubescence above, on the tarsi beneath it is reddish brown; the claws ferruginous, tipped with black; wings subhyaline, the nervures black. Abdomen cordate, and densely clothed with bright ferruginous pubescence beneath.

Male. Rather smaller than the female, but very closely resembling it. Differs in having the clypeus densely covered with very pale fulvous pubescence; the anterior tarsi fringed behind with pale pubescence; the fifth and sixth segments of the abdomen densely clothed above with short ferruginous pubescence; the sixth segment deeply emarginate, forming two blunt apical teeth.

Hab. Honolulu.

Not rare; forming nests of leaves of a species of *Acacia* rolled up into cylindrical cells, which are joined one at the end of another to the length of several inches, and are placed in crevices of masonry. (*T. B.*)

XYLOCOPA ÆNEIPENNIS, *De Geer, Mém.* iii. p. 573, tab. 28. fig. 8, ♀; *St. Farg. Hym.* ii. p. 186, ♀.

The *male* is ferruginous and clothed with fulvous pubescence; the mandibles black, with a pale spot at their base; the scape of the antennæ above and the second joint of the flagellum black. Thorax black beneath; the anterior trochanters black, with a pale ferruginous spine beneath; the intermediate and posterior coxæ and trochanters, and also the femora, black; wings flavo-hyaline, with ferruginous nervures. The apex of the abdomen pubescent in the form of two dense tufts.

Hab. Honolulu. Mexico; Peru; South America; Brazil.

Very abundant and destructive, boring long galleries in wood, with apparent indifference whether the wood be dead or living. (T. B.)

APIS MELLIFICA, *Linn. Syst. Nat.* i. p. 955.

Hab. Sandwich Islands, &c. &c.

Contributions to the Ornithology of New Guinea. By R. BOWDLER SHARPE, F.L.S., F.Z.S. &c.—Part VI. On Collections made by the Rev. W. G. Lawes in South-eastern New Guinea.

[Read April 17, 1879.]

THE collections which have been made in the neighbourhood of Port Moresby during the last few years seem to have tolerably well exhausted the ornithology of that part of New Guinea, and each consignment which reaches England is more or less a repetition of those which have gone before. The Rev. Mr. Lawes, however, has made a small collection of birds; and as he has visited one or two places to the eastward of Port Moresby, I have thought it advisable to give a list of his specimens, as the range of the birds in an easterly direction is one of considerable interest to the student of the avifauna of South-eastern New Guinea.

Walter Bay, Mr. Lawes informs me, is situated a few miles to the east of Port Moresby; but Hood Bay is about sixty miles east of the last-mentioned place. I have referred to my former paper on Mr. Stone's collection (*Journ. Linn. Soc.* xiii. p. 486). The "Laroki" river there mentioned is the same as the Laloke river of the present paper, as Mr. Lawes tells me the latter is the more correct pronunciation.

1. HALIASTUR GIRRENERA (*V.*); *Sharpe, Journ. Linn. Soc.* xiii. p. 490. Walter Bay.

2. MICROGLOSSUM ATERRIMUM (*Gm.*); *Sharpe, t. c.* p. 491. Hood Bay.

3. GEOFFROYIUS ARUENSIS (*Gray*); *Sharpe, t. c.* p. 491. Laloke River.

4. CYCLOPSITTA SUAVISSIMA, *Sclater*; *Sharpe, t. c.* p. 491. Laloke River.